

IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

Please ADD claims 25-28 in accordance with the following:

1. (PREVIOUSLY PRESENTED) A light source device comprising:

a plurality of laser diodes comprising a reference laser diode;

a temperature sensor provided in the vicinity of said plurality of laser diodes;

a control loop for controlling the temperatures of said plurality of laser diodes according to an output from said temperature sensor and temperature control conditions for said laser diodes to control oscillation wavelengths of said plurality of laser diodes;

means for compensating the temperature control conditions for said laser diodes other than the reference laser diode, according to a change in a temperature control condition for said reference laser diode; and

an optical filter in said control loop coupled to said plurality of laser diodes and having a transmittance substantially periodically changing with the wavelength of an incident light,

wherein

the reference laser diode is operated at temperatures lower than or equal to an ordinary temperature, and

said change in said temperature control condition for said reference laser diode comprises a result of a comparison between an initial set temperature and a latest set temperature, where

a deterioration of said temperature sensor reflects the compensation of said temperature control conditions of said laser diodes other than said reference laser diode, and

an initial starting wavelength of an optical signal outputted from said laser diodes other than said reference laser diode is controlled within a desired wavelength pull-in range.

2. (ORIGINAL) A light source device according to claim 1, wherein the oscillation wavelengths of said plurality of laser diodes are different from each other, and said plurality of laser diodes are selectively driven.

3. (ORIGINAL) A light source device according to claim 1, wherein said temperature sensor comprises a thermistor.

4. (ORIGINAL) A light source device according to claim 1, wherein said change in said temperature control condition for said reference laser diode comprises a result of comparison between an initial set temperature and a latest set temperature, whereby a deterioration of said temperature sensor reflects the compensation of said temperature control conditions of said laser diodes other than said reference laser diode.

5. (ORIGINAL) A light source device according to claim 4, wherein said reference laser diode is driven so as to become lower in temperature than said laser diodes other than said reference laser diode.

6. (ORIGINAL) A light source device according to claim 1, wherein said plurality of laser diodes are arranged in an array, and said reference laser diode is positioned at an end of said array.

7. (ORIGINAL) A light source device according to claim 1, wherein said plurality of laser diodes are arranged in an array, and said temperature sensor is positioned near the center of said array.

8. (PREVIOUSLY PRESENTED) A light source device according to claim 1, wherein said control loop further comprises means for controlling the temperatures of said plurality of laser diodes so that the intensity of transmitted light through said optical filter becomes constant.

9. (PREVIOUSLY PRESENTED) A wavelength control device for a light source device having a plurality of laser diodes including a reference laser diode, comprising:

a temperature sensor provided in the vicinity of said plurality of laser diodes;
a control loop for controlling the temperatures of said plurality of laser diodes according to an output from said temperature sensor and temperature control conditions for said laser diodes to control oscillation wavelengths of said plurality of laser diodes;

means for compensating the temperature control conditions for said laser diodes other than the reference laser diode, according to a change in a temperature control condition for said reference laser diode; and

an optical filter in said control loop coupled to said plurality of laser diodes and having a transmittance substantially periodically changing with the wavelength of an incident light,

wherein

the reference laser diode is operated at temperatures lower than or equal to an ordinary temperature, and

said change in said temperature control condition for said reference laser diode comprises a result of a comparison between an initial set temperature and a latest set temperature, where

a deterioration of said temperature sensor reflects the compensation of said temperature control conditions of said laser diodes other than said reference laser diode, and

an initial starting wavelength of an optical signal outputted from said laser diodes other than said reference laser diode is controlled within a desired wavelength pull-in range.

10. (ORIGINAL) A wavelength control device according to claim 9, wherein said temperature sensor comprises a thermistor.

11. (ORIGINAL) A wavelength control device according to claim 9, wherein said change in said temperature control condition for said reference laser diode comprises a result of comparison between an initial set temperature and a latest set temperature, whereby a deterioration of said temperature sensor reflects the compensation of said temperature control conditions of said laser diodes other than said reference laser diode.

12. (PREVIOUSLY PRESENTED) A wavelength control device according to claim 9, wherein said control loop further comprises means for controlling the temperatures of said plurality of laser diodes so that the intensity of transmitted light through said optical filter becomes constant.

13. (PREVIOUSLY PRESENTED) A light source device comprising:

a plurality of laser diodes comprising a reference laser diode;

a first temperature sensor provided in the vicinity of said plurality of laser diodes;

a second temperature sensor provided at a position becoming lower in temperature than a position where said first temperature sensor is provided when driving said plurality of laser diodes;

a control loop for controlling the temperatures of said plurality of laser diodes according to an output from said first temperature sensor and a control signal to control oscillation wavelengths of said plurality of laser diodes;

means for compensating a detected temperature by said first temperature sensor according to a detected temperature by said second temperature sensor and according to a change in respective temperature control conditions for the reference laser diode and outputting the control signal based on the detected temperatures and the temperature control conditions; and

an optical filter in said control loop coupled to said plurality of laser diodes and having a transmittance substantially periodically changing with the wavelength of an incident light,

wherein

the reference laser diode is operated at temperatures lower than or equal to an ordinary temperature, and

said change in said temperature control condition for said reference laser diode comprises a result of a comparison between an initial set temperature and a latest set temperature, where

a deterioration of said temperature sensor reflects the compensation of said temperature control conditions of said laser diodes other than said reference laser diode, and

an initial starting wavelength of an optical signal outputted from said laser diodes other than said reference laser diode is controlled within a desired wavelength pull-in range.

14. (ORIGINAL) A light source device according to claim 13, wherein the oscillation wavelengths of said plurality of laser diodes are different from each other, and said plurality of laser diodes are selectively driven.

15. (ORIGINAL) A light source device according to claim 13, wherein each of said first and second temperature sensors comprises a thermistor.

16. (PREVIOUSLY PRESENTED) A light source device according to claim 13, wherein said control loop further comprises means for controlling the temperatures of said plurality of laser diodes so that the intensity of transmitted light through said optical filter becomes constant.

17. (ORIGINAL) A light source device according to claim 16, wherein:
said second temperature sensor is provided in the vicinity of said optical filter;
said light source device further comprising means for controlling the temperature of said optical filter according to an output from said second temperature sensor so that the temperature of said optical filter is maintained constant.

18. (PREVIOUSLY PRESENTED) A wavelength control device for a light source device having a plurality of laser diodes including a reference laser diode, comprising:
a first temperature sensor provided in the vicinity of said plurality of laser diodes;
a second temperature sensor provided at a position becoming lower in temperature than a position where said first temperature sensor is provided when driving said plurality of laser diodes;
a control loop for controlling the temperatures of said plurality of laser diodes according to an output from said first temperature sensor and a control signal to thereby control the oscillation wavelengths of said plurality of laser diodes; and
means for compensating a detected temperature by said first temperature sensor according to a detected temperature by said second temperature sensor and according to a change in temperature control condition for the reference laser diode and outputting the control signal based on the detected temperatures and the temperature control condition; and
an optical filter in said control loop coupled to said plurality of laser diodes and having a transmittance substantially periodically changing with the wavelength of incident light,
wherein
the reference laser diode is operated at temperatures lower than or equal to an ordinary temperature, and
said change in said temperature control condition for said reference laser diode comprises a result of a comparison between an initial set temperature and a latest set temperature, where
a deterioration of said temperature sensor reflects the compensation of said temperature control conditions of said laser diodes other than said reference laser diode, and

an initial starting wavelength of an optical signal outputted from said laser diodes other than said reference laser diode is controlled within a desired wavelength pull-in range.

19. (ORIGINAL) A wavelength control device according to claim 18, wherein each of said first and second temperature sensors comprises a thermistor.

20. (PREVIOUSLY PRESENTED) A wavelength control device according to claim 18, wherein said control loop further comprises means for controlling the temperatures of said plurality of laser diodes so that the intensity of transmitted light through said optical filter becomes constant.

21. (PREVIOUSLY PRESENTED) A light source device comprising:
a plurality of laser diodes comprising a reference laser diode;
a temperature sensor provided in the vicinity of said plurality of laser diodes;
a control loop controlling the temperatures of said plurality of laser diodes according to an output from said temperature sensor and temperature control conditions for the laser diodes to thereby control the oscillation wavelengths of said plurality of laser diodes; and
a compensator compensating the temperature control conditions for said laser diodes other than the reference laser diode, according to a change in temperature control condition for said reference laser diode, wherein the reference laser diode is operated at temperatures lower than or equal to an ordinary temperature.

22. (PREVIOUSLY PRESENTED) A wavelength control device for a light source device having a plurality of laser diodes including a reference laser diode, comprising:
a temperature sensor provided in the vicinity of said plurality of laser diodes;
a control loop controlling the temperatures of said plurality of laser diodes according to an output from said temperature sensor and temperature control conditions for the laser diodes to thereby control the oscillation wavelengths of said plurality of laser diodes; and
a compensator compensating the temperature control conditions for said laser diodes other than the reference laser diode, according to a change in temperature control condition for said reference laser diode wherein the reference laser diode is operated at temperatures lower than or equal to an ordinary temperature.

23. (PREVIOUSLY PRESENTED) A light source device comprising:
a plurality of laser diodes comprising a reference laser diode;
a first temperature sensor provided in the vicinity of said plurality of laser diodes;
a second temperature sensor provided at a position becoming lower in temperature than
a position where said first temperature sensor is provided when driving said plurality of laser
diodes;
a control loop controlling the temperatures of said plurality of laser diodes according to
an output from said first temperature sensor and a control signal to thereby control the oscillation
wavelengths of said plurality of laser diodes; and
a compensator compensating a detected temperature by said first temperature sensor
according to a detected temperature by said second temperature sensor and according to a
change in temperature control condition for the reference laser diode and outputting the control
signal based on the detected temperatures and the temperature control condition, wherein the
reference laser diode is operated at temperatures lower than or equal to an ordinary
temperature.

24. (PREVIOUSLY PRESENTED) A wavelength control device for a light source
device having a plurality of laser diodes including a reference laser diode, comprising:
a first temperature sensor provided in the vicinity of said plurality of laser diodes;
a second temperature sensor provided at a position becoming lower in temperature than
a position where said first temperature sensor is provided when driving said plurality of laser
diodes;
a control loop controlling the temperatures of said plurality of laser diodes according to
an output from said first temperature sensor and a control signal to thereby control the oscillation
wavelengths of said plurality of laser diodes; and
a compensator compensating a detected temperature by said first temperature sensor
according to a detected temperature by said second temperature sensor and according to a
change in temperature control condition for the reference laser diode and outputting the control
signal based on the detected temperatures and the temperature control circuit, wherein the
reference laser diode is operated at temperatures lower than or equal to an ordinary
temperature.

25. (NEW) A light source device comprising:

a plurality of laser diodes comprising a reference laser diode;
a temperature sensor provided in a vicinity of said plurality of laser diodes;
a control loop controlling temperatures of said plurality of laser diodes according to an output from said temperature sensor and temperature control conditions for said laser diodes to thereby control oscillation wavelengths of said plurality of laser diodes;
a compensator compensating the temperature control conditions for said laser diodes other than the reference laser diode, according to a change in a temperature control condition for said reference laser diode; and
an optical filter in said control loop coupled to said plurality of laser diodes and having a transmittance periodically changing with a wavelength of light incident thereon,
wherein the reference laser diode is operated at temperatures lower than or equal to an ordinary temperature, said change in said temperature control condition for said reference laser diode comprises a result of comparison between an initial set temperature and a latest set temperature, a deterioration of said temperature sensor reflects the compensation of the temperature control conditions for said laser diodes other than said reference laser diode and an initial starting wavelength of an optical signal output from said laser diodes other than said reference laser diode is controlled within a desired wavelength pull-in range.

26. (NEW) A wavelength control device for a light source device having a plurality of laser diodes including a reference laser diode, comprising:
a temperature sensor provided in a vicinity of said plurality of laser diodes;
a control loop controlling temperatures of said plurality of laser diodes according to an output from said temperature sensor and temperature control conditions for said laser diodes to thereby control oscillation wavelengths of said plurality of laser diodes;
a compensator compensating the temperature control conditions for said laser diodes other than the reference laser diode, according to a change in a temperature control condition for the reference laser diode; and
an optical filter in said control loop coupled to said plurality of laser diodes and having a transmittance periodically changing with a wavelength of a light incident thereon,
wherein the reference laser diode is operated at temperatures lower than or equal to an ordinary temperature, said change in said temperature control condition for said reference laser diode comprises a result of comparison between an initial set temperature and a latest set temperature, a deterioration of said temperature sensor reflects the compensation of the temperature control conditions for said laser diodes other than said reference laser diode and

an initial starting wavelength of an optical signal output from said laser diodes other than said reference laser diode is controlled within a desired wavelength pull-in range.

27. (NEW) A light source device comprising:

a plurality of laser diodes comprising a reference laser diode;

a first temperature sensor provided at a first position in a vicinity of said plurality of laser diodes;

a second temperature sensor provided at a second position becoming lower in temperature than the first position when driving said plurality of laser diodes;

a control loop controlling temperatures of said plurality of laser diodes according to an output from said first temperature sensor and a control signal to thereby control oscillation wavelengths of said plurality of laser diodes;

a compensator compensating a temperature detected by said first temperature sensor according to a temperature detected by said second temperature sensor and according to a change in a temperature control condition for the reference laser diode and outputting the control signal based on the detected temperatures and the temperature control condition; and

an optical filter in said control loop coupled to said plurality of laser diodes and having a transmittance periodically changing with a wavelength of light incident thereon,

wherein the reference laser diode is operated at a temperature lower than or equal to an ordinary temperature, said change in said temperature control condition for said reference laser diode comprises a result of comparison between an initial set temperature and a latest set temperature, a deterioration of at least one of said temperature sensors reflects a compensation of said temperature control condition for said laser diodes other than the reference laser diode and an initial starting wavelength of an optical signal output from said laser diodes other than said reference laser diode is controlled within a desired wavelength pull-in range.

28. (NEW) A wavelength control device for a light source device having a plurality of laser diodes including a reference laser diode, comprising:

a first temperature sensor provided in a first position in a vicinity of said plurality of laser diodes;

a second temperature sensor provided at a second position becoming lower in the first position when driving said plurality of laser diodes;

a control loop controlling temperatures of said plurality of laser diodes according to an output from said first temperature sensor and a control signal to thereby control oscillation wavelengths of said plurality of laser diodes;

a compensator compensating a temperature detected by said first temperature sensor according to a temperature detected by said second temperature sensor and according to a change in a temperature control condition for the reference laser diode and outputting the control signal based on the detected temperatures and the temperature control condition; and

an optical filter in said control loop coupled to said plurality of laser diodes and having a transmittance periodically changing with a wavelength of a light incident thereon,

wherein the reference laser diode is operated at a temperature lower than or equal to an ordinary temperature, said change in said temperature control condition for said reference laser diode comprises a result of comparison between an initial set temperature and a latest set temperature, a deterioration of said first temperature sensor reflects a compensation of the temperature control condition of said laser diodes other than said reference laser diode and an initial starting wavelength of an optical signal output from said laser diodes other than said reference laser diode is controlled within a desired wavelength pull-in range.